

**USER PROGRAMMABLE GEOMETRY ENGINE****ABSTRACT**

A programmable geometry engine is described. One embodiment of the programmable geometry engine includes a programmable primitive engine configured to receive primitive commands that include information for processing vertex data using user-developed programs or subroutines. The programmable primitive engine also is configured to transmit program commands that include program pointers and data pointers. In addition, the programmable geometry engine includes a processing engine configured to receive the program commands. The processing engine is further configured to retrieve the user-developed programs or subroutines using the program pointers and to retrieve vertex data using the data pointers. Also, the processing engine is configured to process the vertex data based on instructions included in the user-developed programs or subroutines to produce processed vertex data and to transmit results to the programmable primitive engine.